

Articles

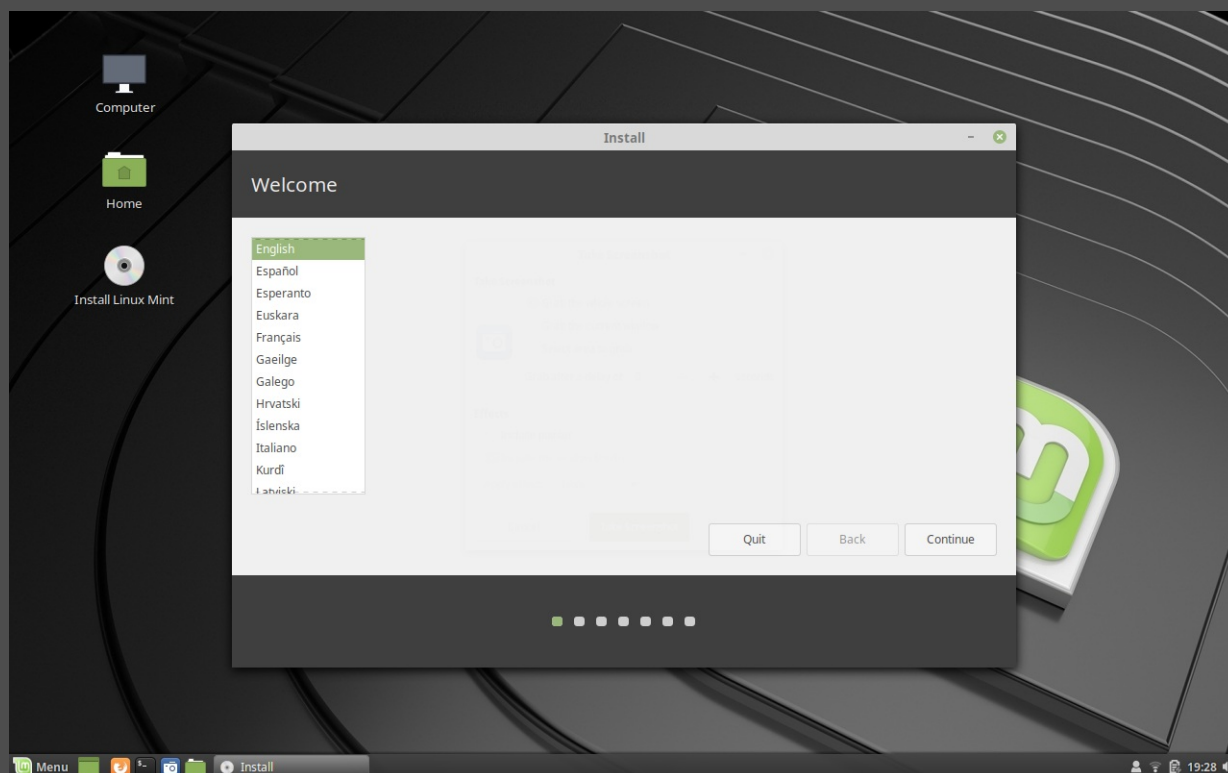
Install Linux Mint

Preface

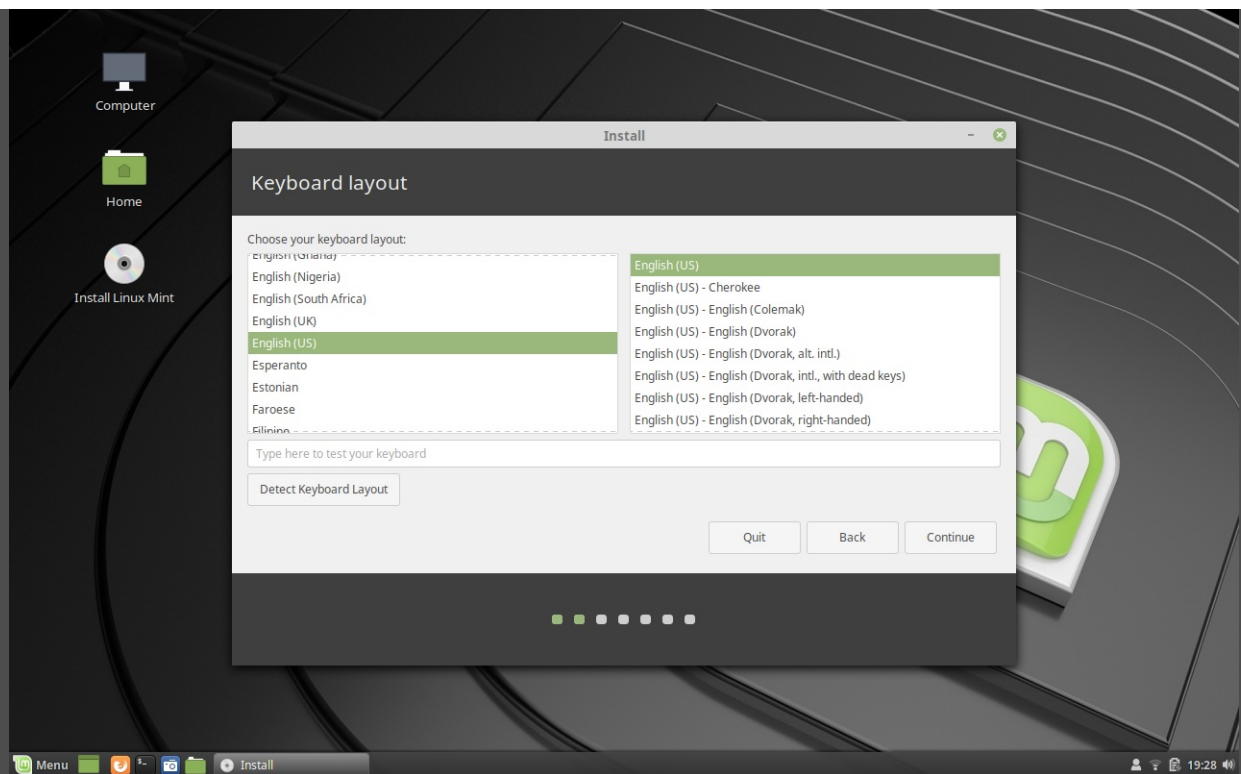
As a trained computer scientist I am often asked by Windows users about Linux. Which distribution is the best to change? Is Linux really more secure than Windows and for whom is Linux suitable at all? Here I will answer some common questions with my personal opinion and try to shed more light on the darkness of the Linux world. I will deliberately keep this simple because I want to explain the installation routine of a well-known Linux distribution here.

When we talk about Linux, we are basically talking about a computer core ([kernel](#)) developed by [Linus Torvalds](#) and licensed under an open source software model. This means that anyone can participate in the development of the kernel. What we see in most cases as an operating system (mostly with a graphical user interface) are the [different distributions](#) that build on this kernel. The distributions have different requirements. Some value a good design, others a good security technique. I personally use [Elementary OS](#) (for design and web), [Linux Mint](#) (IPFS, network) and [Arch Linux](#). I have also been using [Debian](#) for a long time, but as I mentioned earlier, it always depends on the individual user.

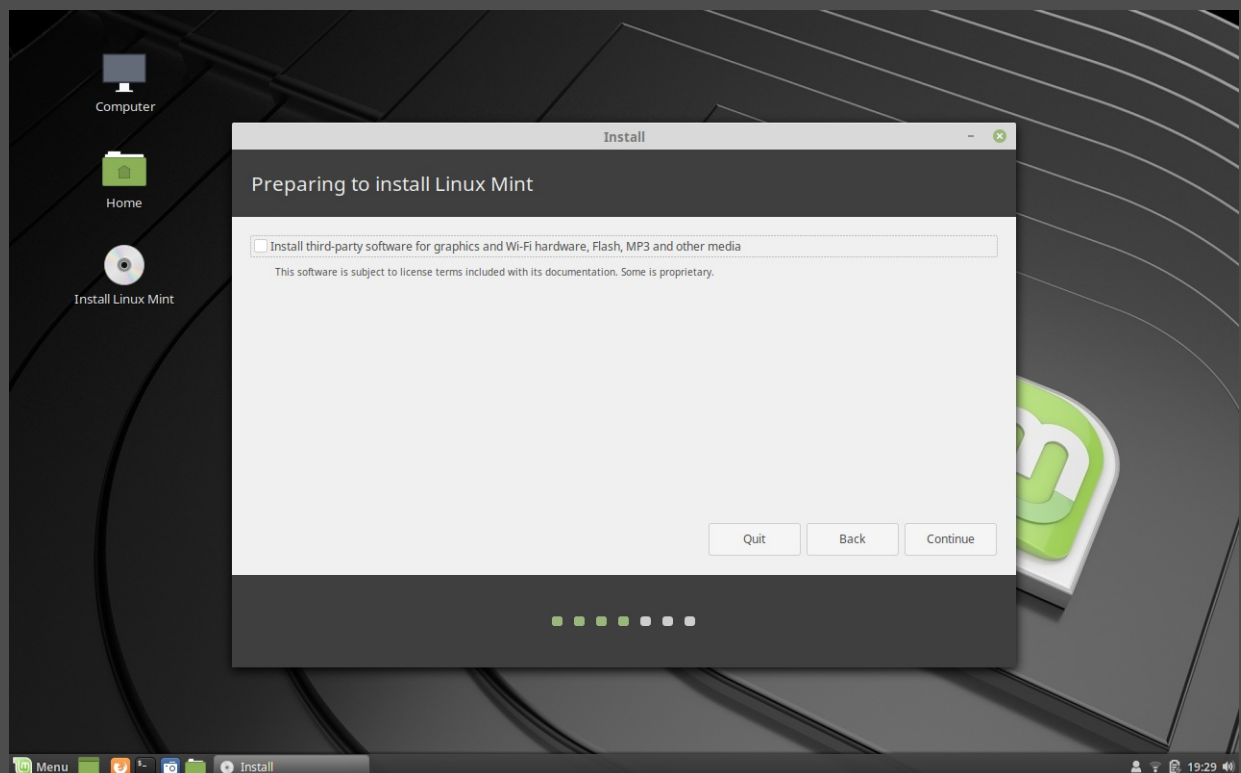
Many professional Linux users are of the mistaken opinion that it is best to start with [Ubuntu](#). That's true, but unfortunately only from the point of view of a Linux user, because I have often experienced that users find it difficult to switch to the [Unity](#) and therefore quickly lose interest. Much better Linux Mint was accepted, because it resembles the (old) user interface of Windows. The task bar is at the bottom and in the lower left corner is the starter with which you open the menu. The design is ugly, yes. But it's not about winning the prize for the most beautiful flower pot. So I will explain the installation routine for Linux Mint here. First we have to download the current version and [install it on a USB stick](#).



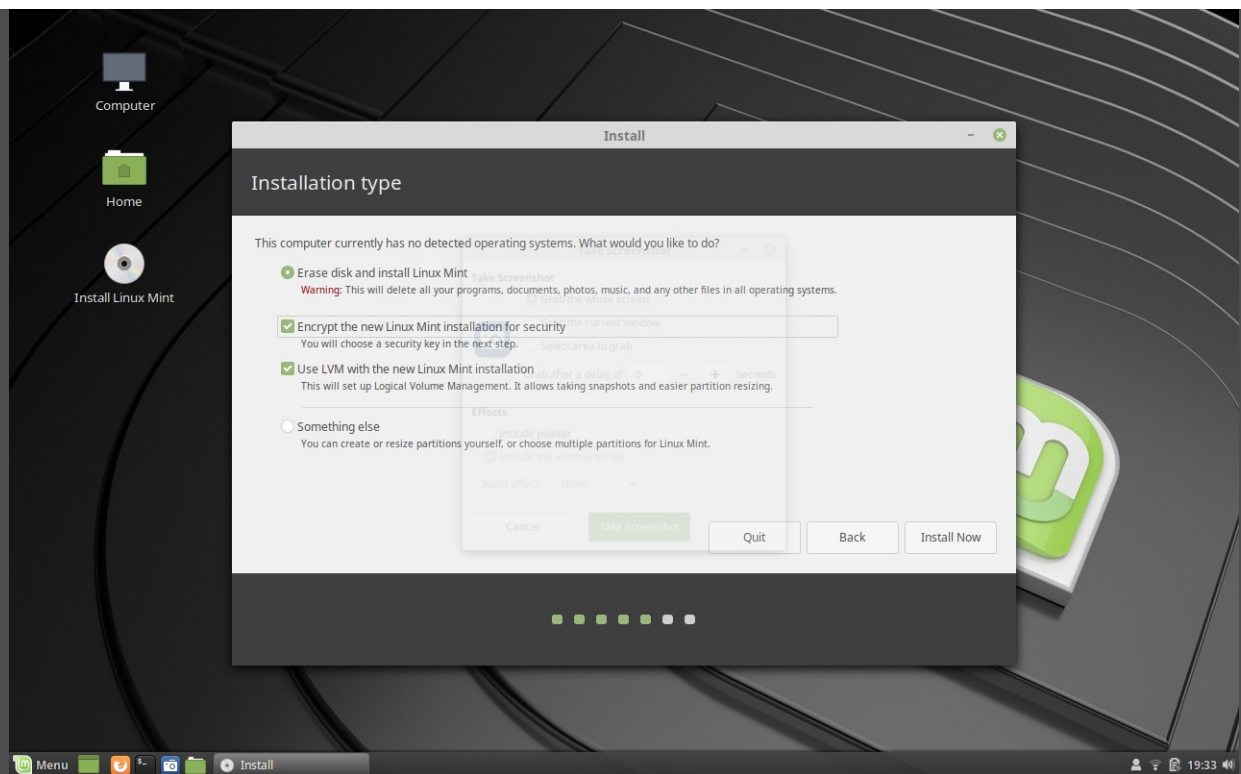
After starting the computer the welcome screen of Linux Mint appears. This already shows how our later desktop will look like. If you want to test the distribution a little first, you are welcome to do so. But when you shut down your computer, all files you created will be deleted. Also pictures or texts. To install Linux Mint we double click on the small CD called [Install Linux Mint](#). The window at the top will appear where we can set our language.



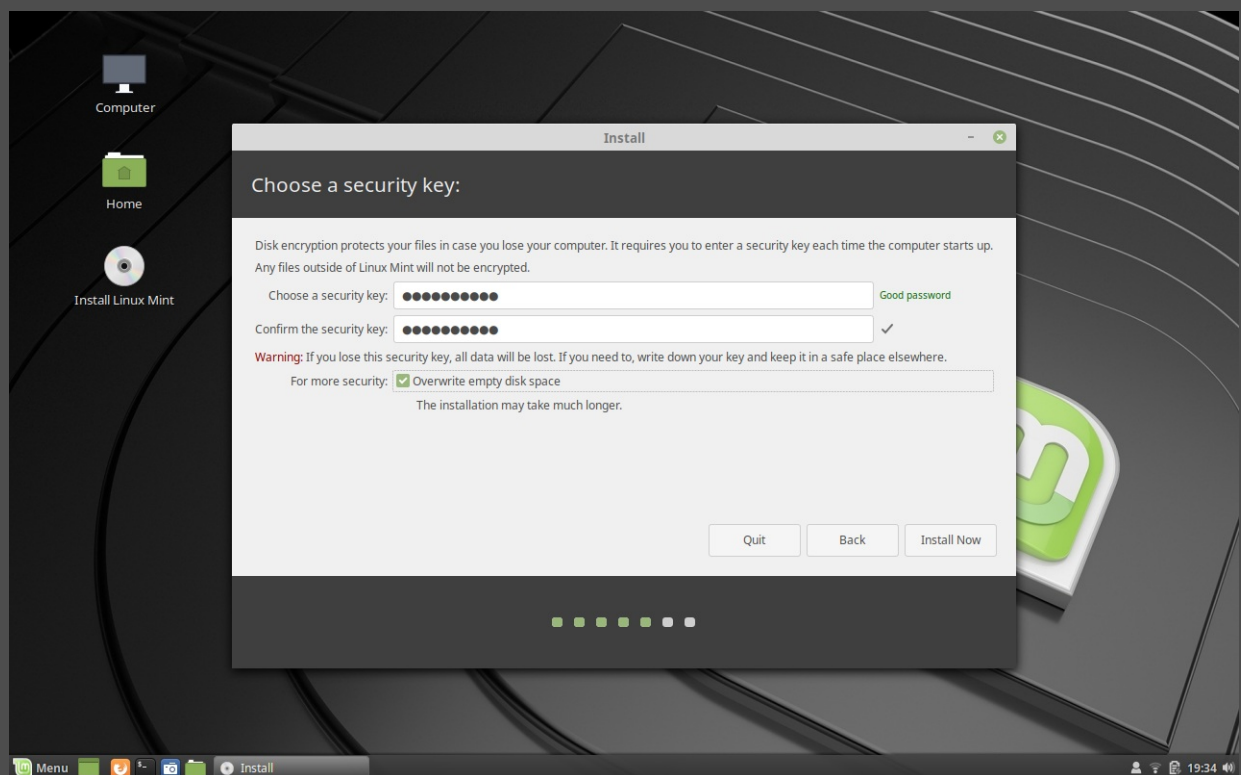
In the next step we come to the **keyboard layout**. There we can set the language for our keyboard. For German users please note that you have to select the German layout because there are no umlauts (ä, ü, ö, ß) in the American/British layout. In addition, the key assignment is different and usually no longer matches the imprint of the individual hardware keys.



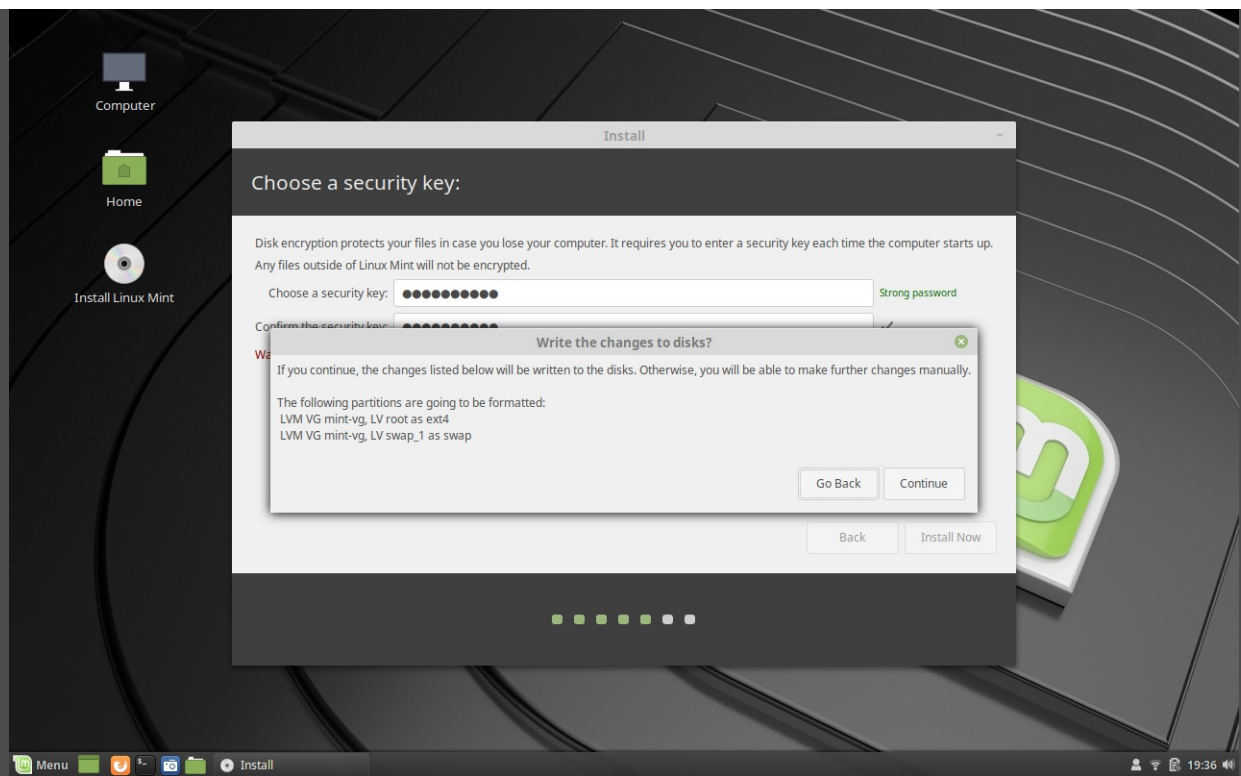
Now we come to **preparing to install linux mint** where beside the text *install third-party software for graphics and Wi-Fi hardware, Flash, MP3 and other media* a small checkbox can be clicked. Since most software is released on Linux Minut under free licenses, this is an important question. Proper software is the exact opposite of what the Linux community is working for, because you can't see the source code and fix bugs yourself. This is a great freedom from Linux. Since most beginners are not interested in this and would rather use a stable (but insecure) operating system, you should check the box here. Sometimes you even have to, because an old laptop only works well with certain drivers. If you stay with Linux you should inform yourself later why this is only an emergency solution.



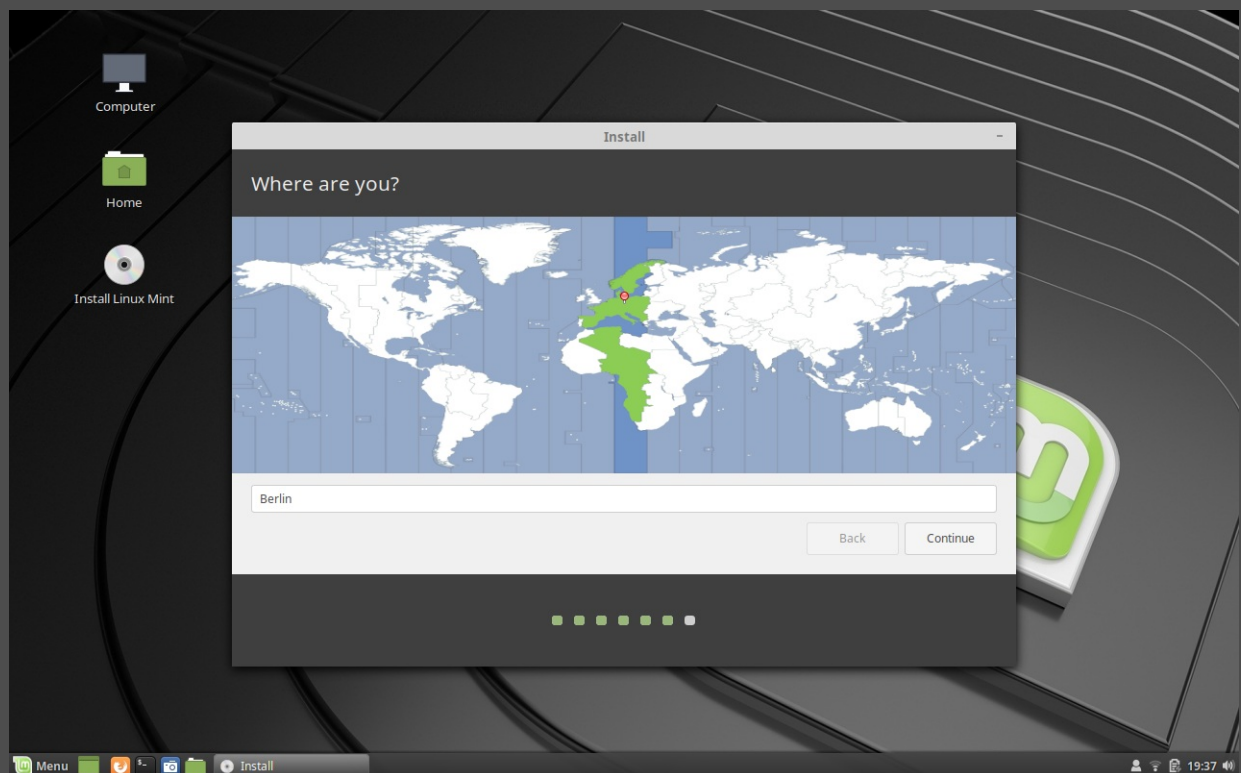
When selecting the **installation type** there are some things you have to explain. When we install a new operating system on a hard disk, (usually) everything on the disk is erased. There is also the possibility to install an operating system next to e.g. Windows 10, but I advise against that. In my experience, you should only use one operating system on one computer at a time. The item *Erase disk and install Linux Mint* has already been selected, because otherwise we cannot continue with the installation. Below there are still the points: *Encrypt the new Linux Mint installation for security* and use *LVM* with new Linux Mint installation. Even if this sounds quite complicated at first, I advise beginners to encrypt their hard disk. In my personal opinion, nobody (except the user) should have access to private data.



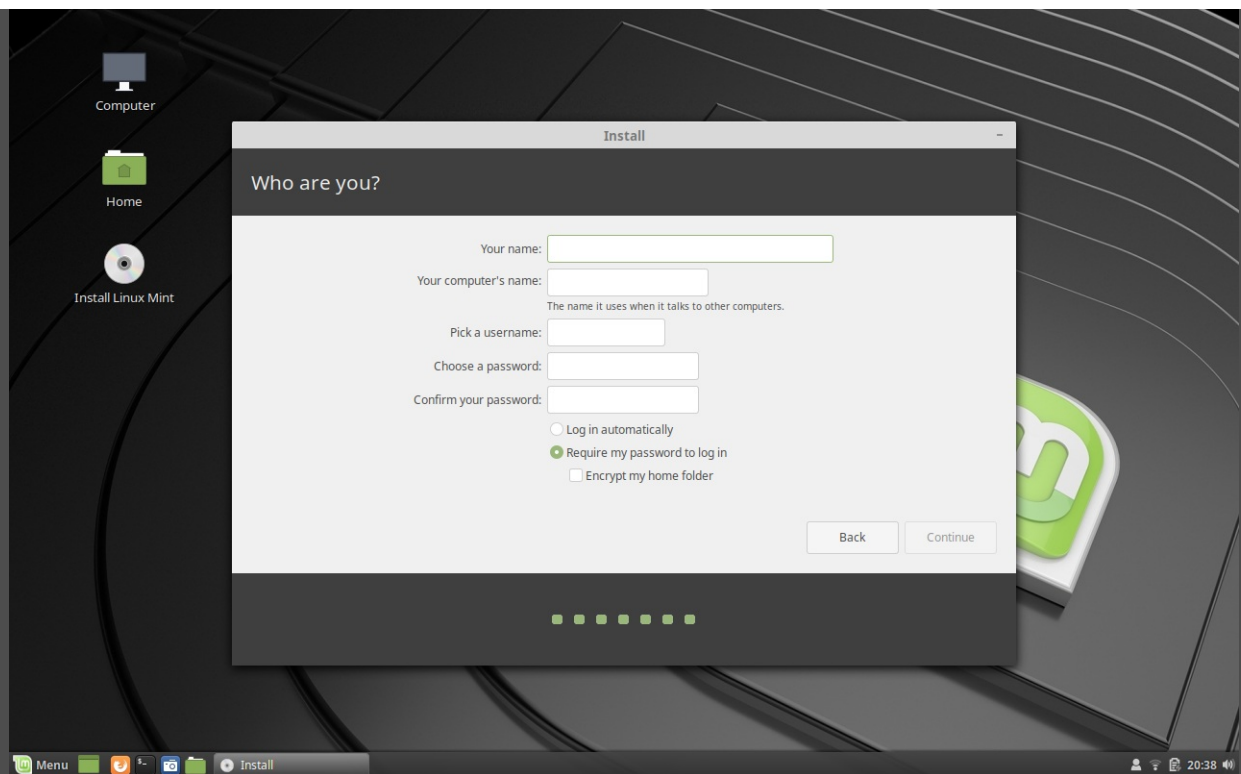
Choose a security key is also a point that is often skipped. Most users assign a weak password and wonder why their computer has been cracked by criminals after half a year. Yes, Linux Mint is more secure in many ways, but that's no panacea for using cheap passwords like `12345`, `admin` or `admin12345`. To the right of the text box you can see how good the password is. With *overwrite empty disk space* we set the small hook. This makes the installation take longer, but it also overwrites everything on the hard disk.



After the security key we get another hint, which informs us about the current state of the installation. Now the most important part is finished.



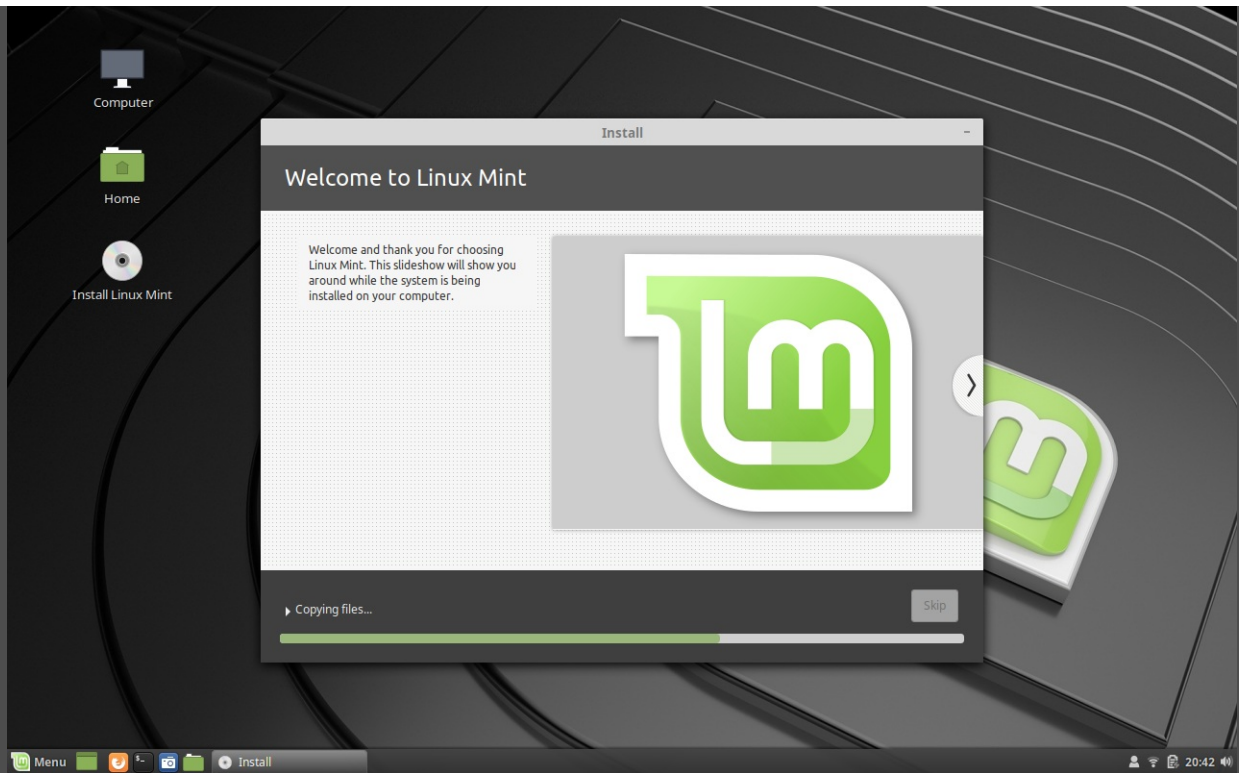
At this point we enter where we are physically with our computer. From these data the correct date or time is calculated. But who works at night anyway or does not tend to pay attention to the current time can ignore this point. In my personal opinion there should be a digital time that does not depend on the technical hardware. It would solve many problems at the same time, e.g. the improvement of the failure protection of technical plants.



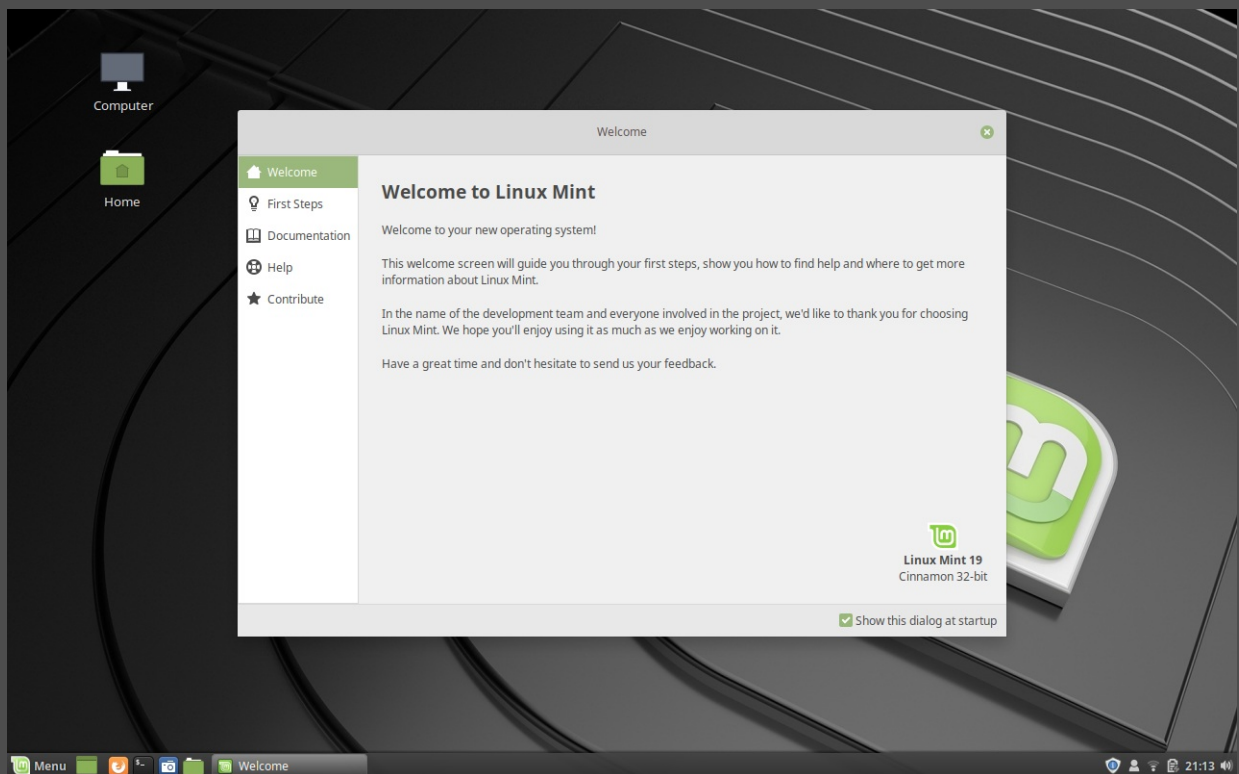
This screenshot should be self-explanatory, but I would like to give some hints. Please don't use real names, just choose an *alias*. Only you have to realize that you are `coolHacker42`. I even prefer to use `childish, kitschy and randomly generated hacker/Pimp/Superhero/DJ` names. With a real name, attackers from outside have an additional vector to work with. I also advise against entering real information like brand, type or serial number in the computer name. This is all information that can be evaluated. Names that explain the real location of the computer are also not good. So *garden laptop* already says much too much about the device. I've already said enough about passwords above. We set the checkbox *Require my password to log in* to True. This costs a little more time when logging in, but also prevents occasional criminals from physically accessing your device, e.g. if you need to take your laptop with you to the office. Since the hard disk is already encrypted, I have read out the function *Encrypt my home folder*. But I haven't yet figured out if this really works for me. Following once again an example how **not to do it**.

```
Your name:           Michael Schmidt
Your computer's name: MichaelSchmidtsAsusShinobeeLinuxMintWorkshopLaptop
Pick a username:     michel
Choose a password:   admin1234
...
[x] Log in automatically
( ) Require my password to log in
[ ] Encrypt my home folder
```

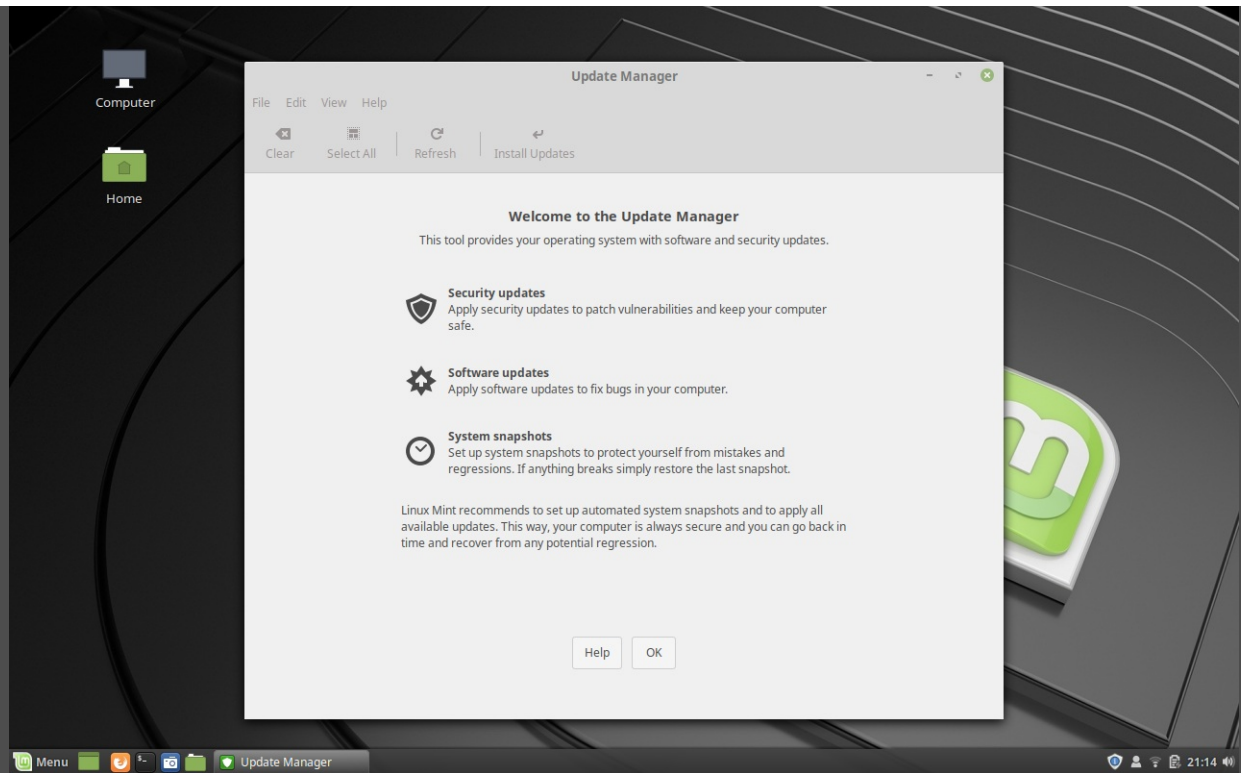
You shouldn't laugh now, because I've seen similar data from a real user.



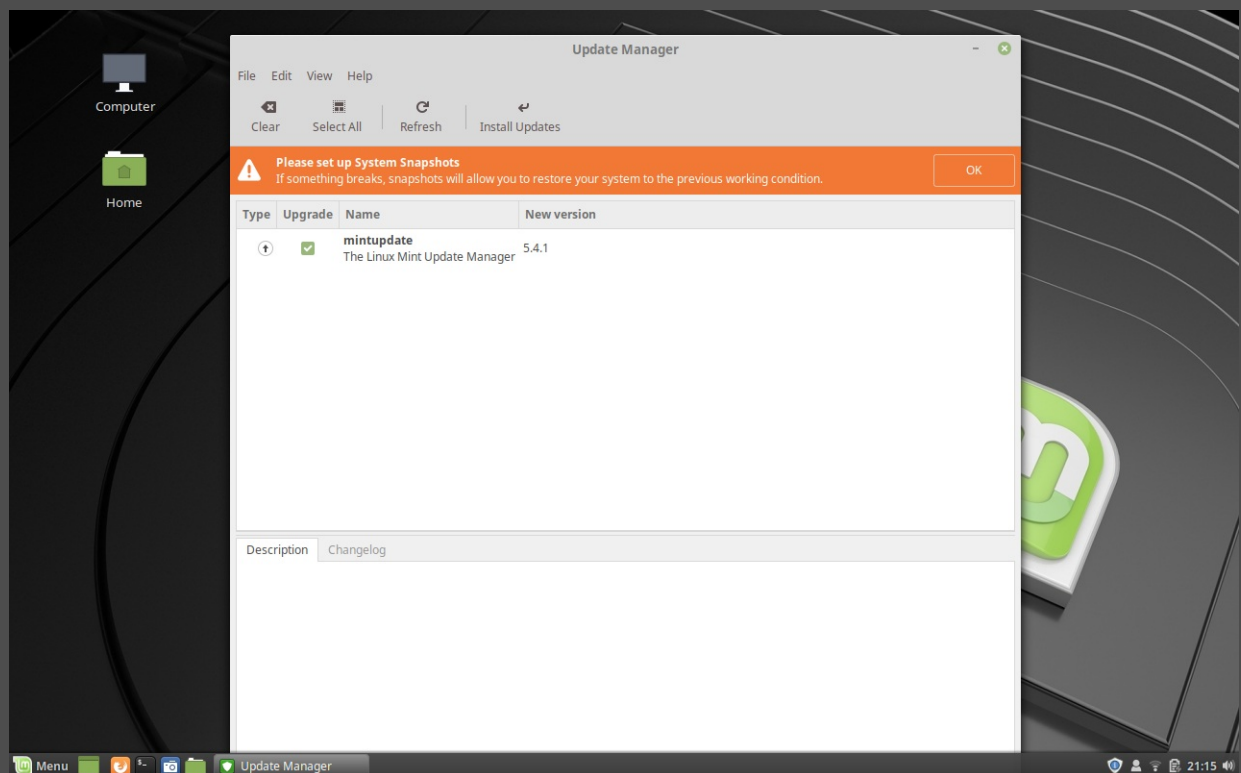
Now the actual installation of the operating system begins and this can take some time. It also depends on how fast your computer is. Things you should be aware of beforehand. With laptops you should make sure that the device is connected to the power supply with a mains adapter. If the battery would go empty with an installation, you would have to do the work again from the front. If possible, WLAN or a network cable (RJ45) should also be connected to the computer. After the basic installation Linux Mint wants to install a complete update again and the computer must be able to access the *Software Sources*. In case of an emergency install you can do this later.



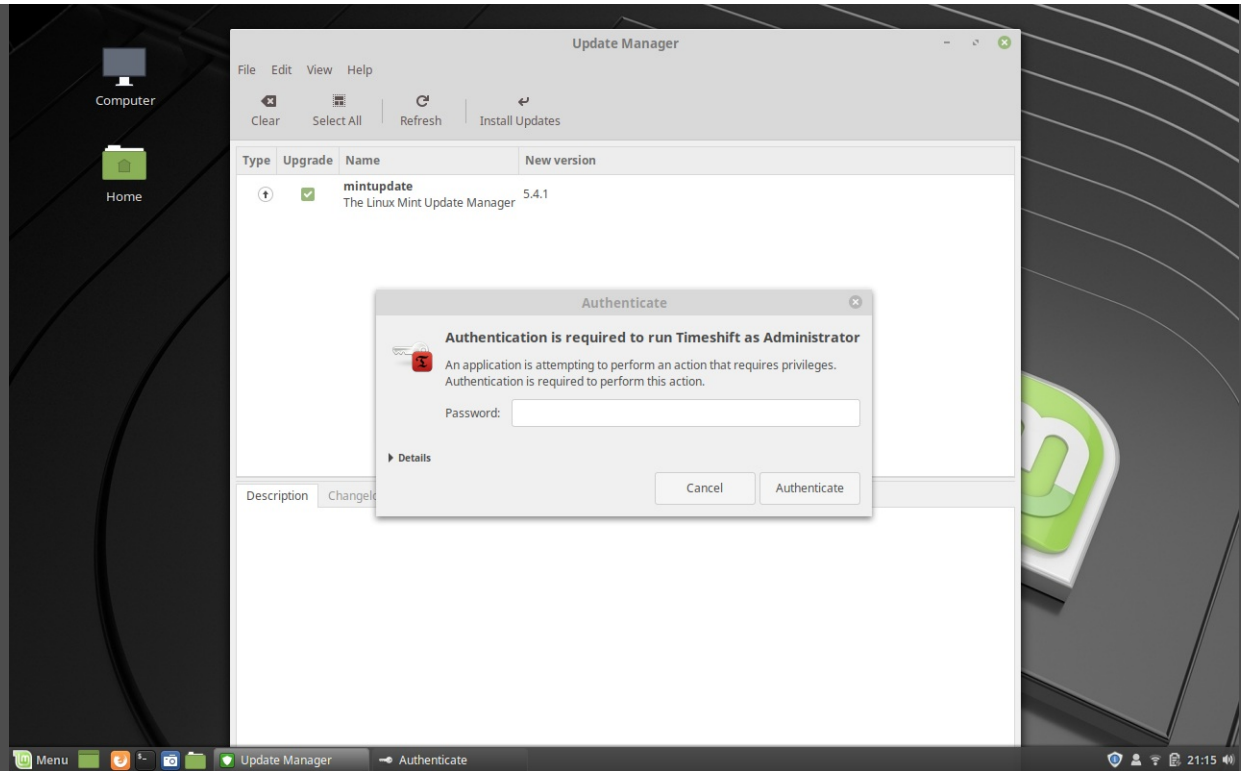
This dialog appears after the complete installation until we have set the checkbox at *Show dialog at startup* to False. In the lower right corner there is a small blue sign. This signals us that the Linux Mint operating system must be updated. In most cases the Update Manager opens by itself, if this is not the case you can double-click on the blue sign with the mouse.



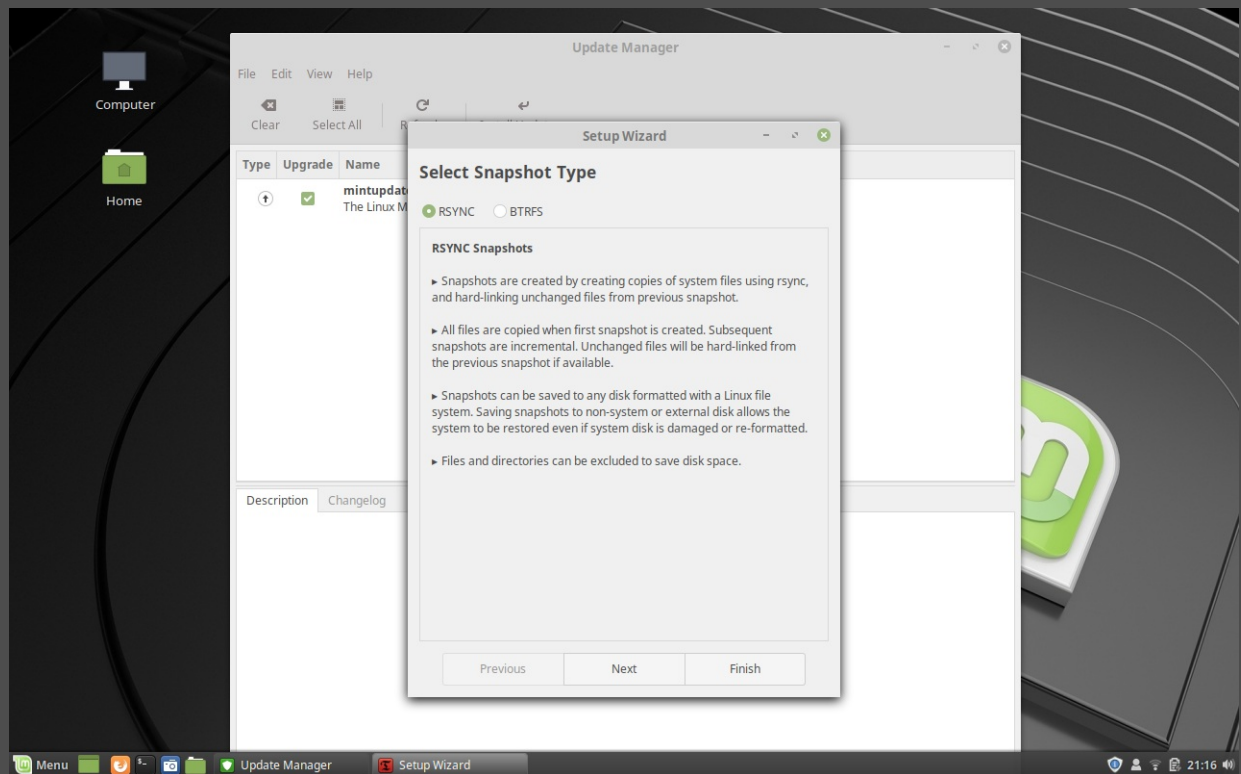
The update manager explains its functions to us. These are the **security** and **software updates** and **system snapshots**. We click on the OK button and start the application.



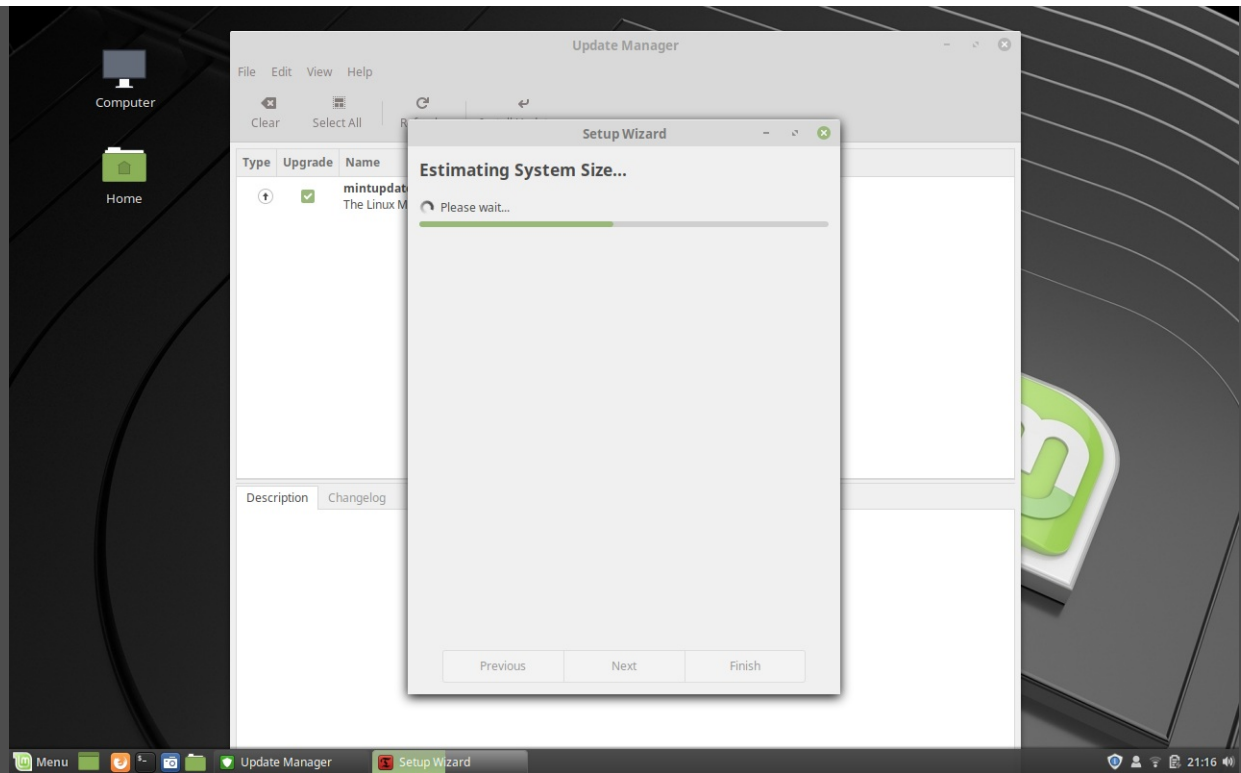
Since updates in many cases change/improve basic functions of the kernel and operating system, it is advisable to create a snapshot beforehand with [Timeshift](#). This way you can restore your data after a crash at a certain point in time. This is important for users who also have to work with the system professionally. We press the Ok button in the orange bar.



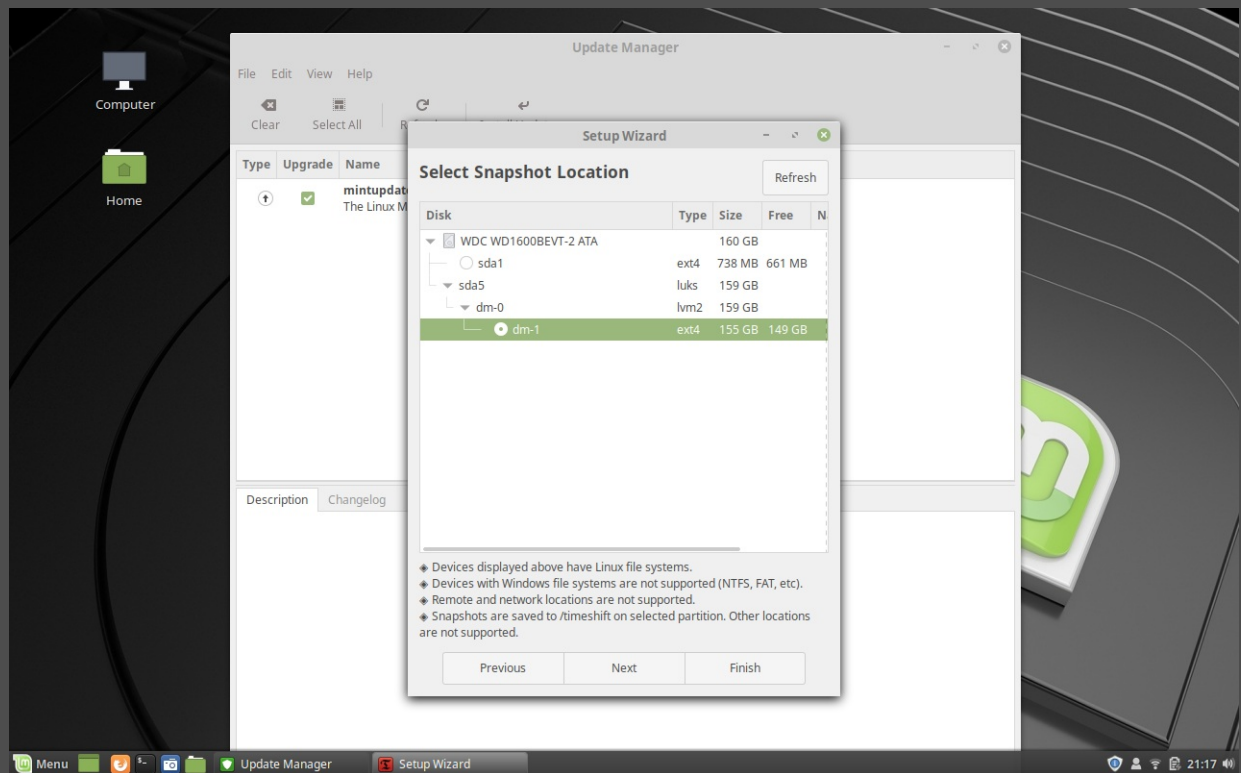
For each action we have to perform as administrator, we will be asked to enter our password. Actually you should have already set up a [super user](#) and assign him a [new password](#). I omitted that here in favor of an easier entrance for beginners. But you should get to grips with the two topics as soon as possible in order to make your system more secure.



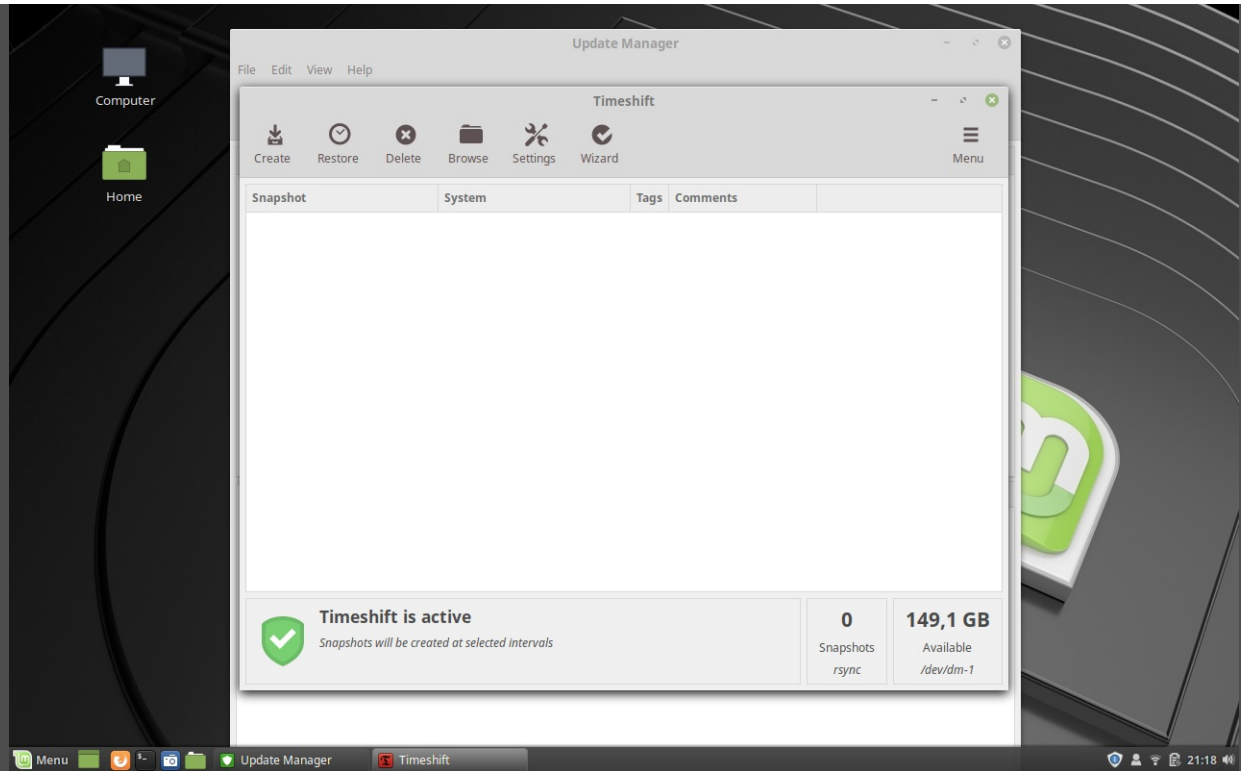
With the possibility to make a snapshot I choose [RSYNC](#) in most cases, because I made the better experiences with it. We press the *Finish* button to create the snapshot.



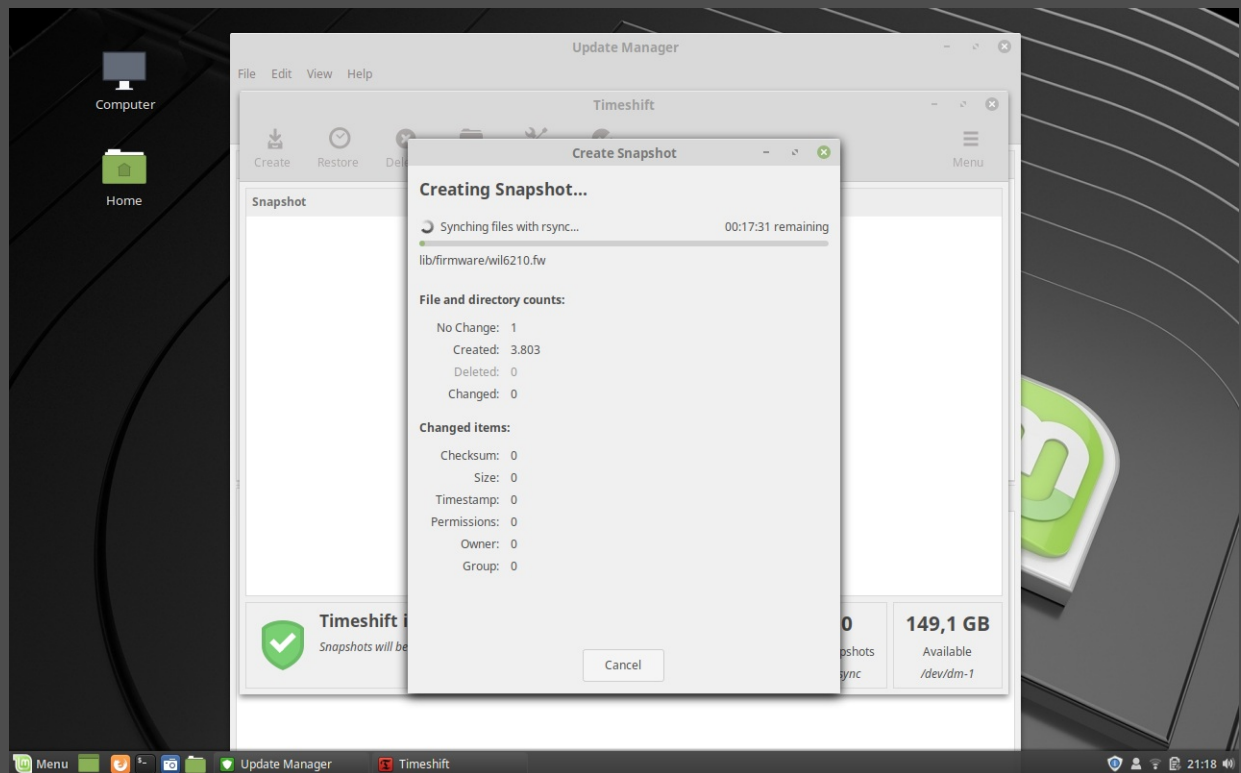
At this point we have to wait a few minutes, who wants can just get a coffee.



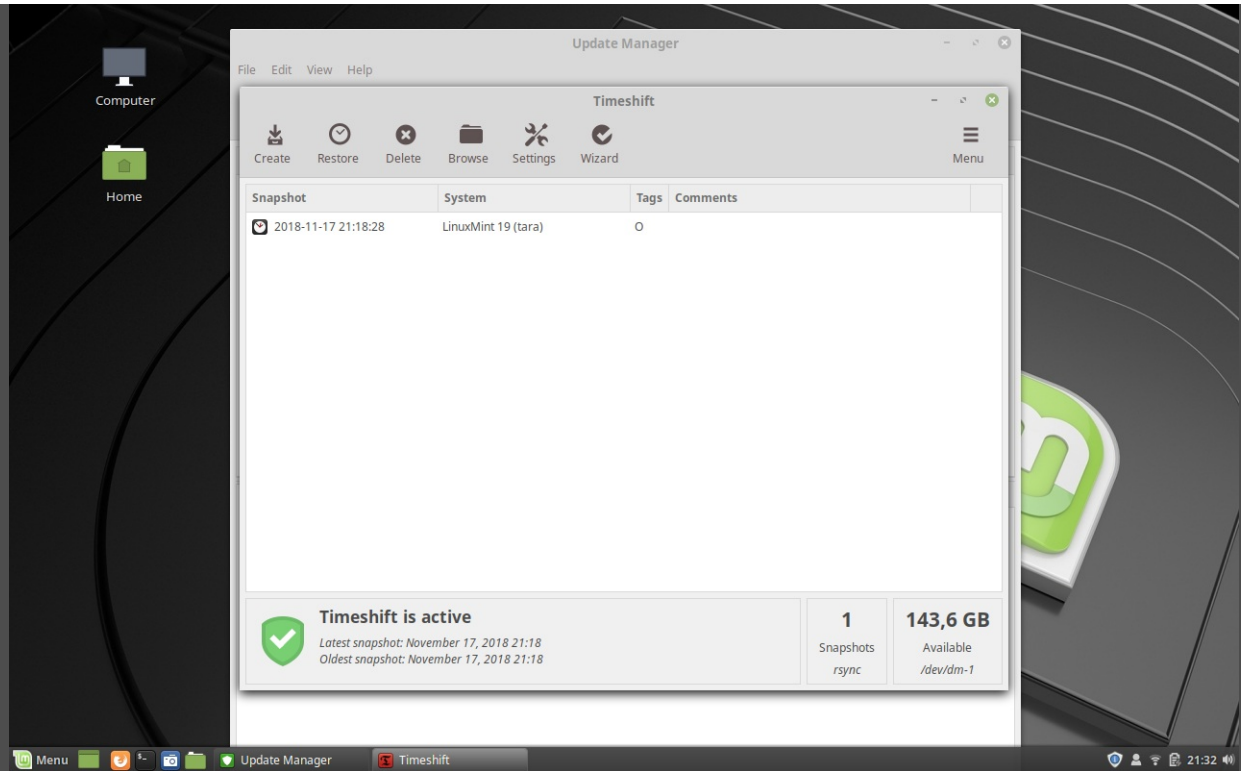
We specify where in the file system our snapshot should be created. I haven't yet tested whether you can also specify an external hard disk as storage location.



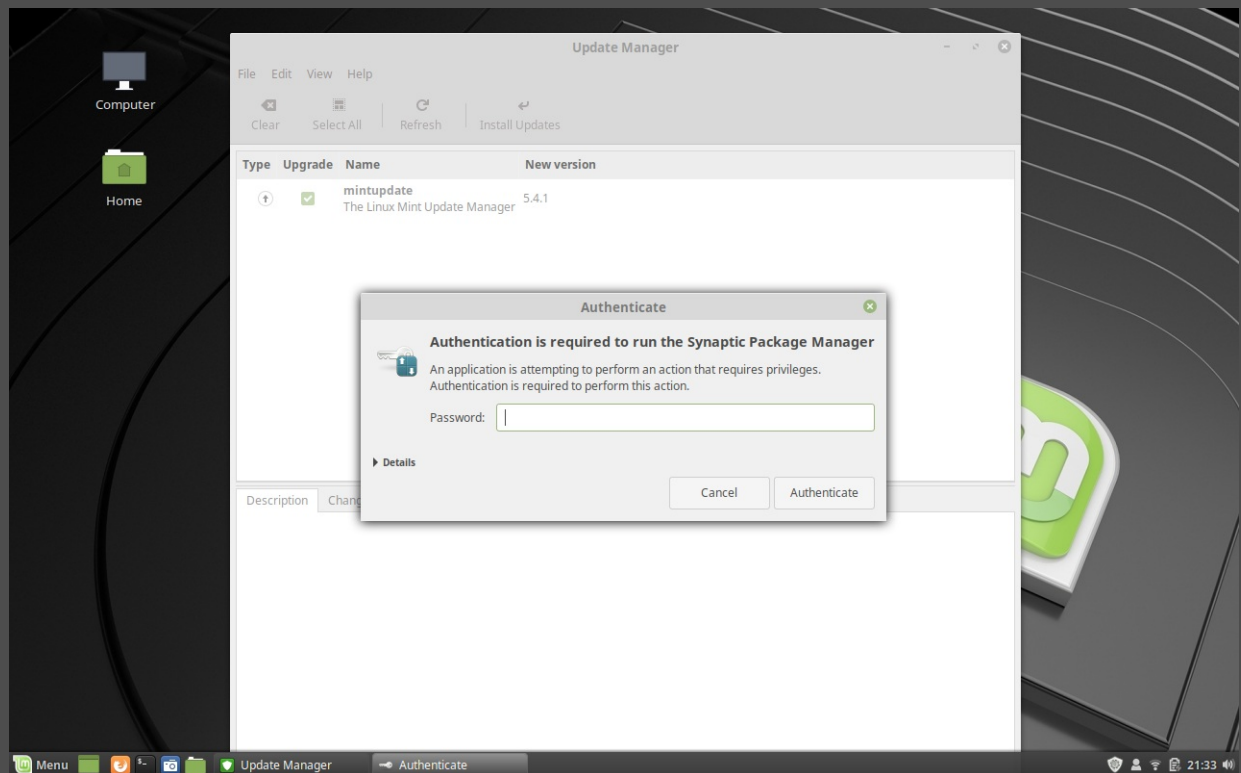
To create a snapshot with Timeshift we just have to click on the *create* button in the upper left corner of the window.



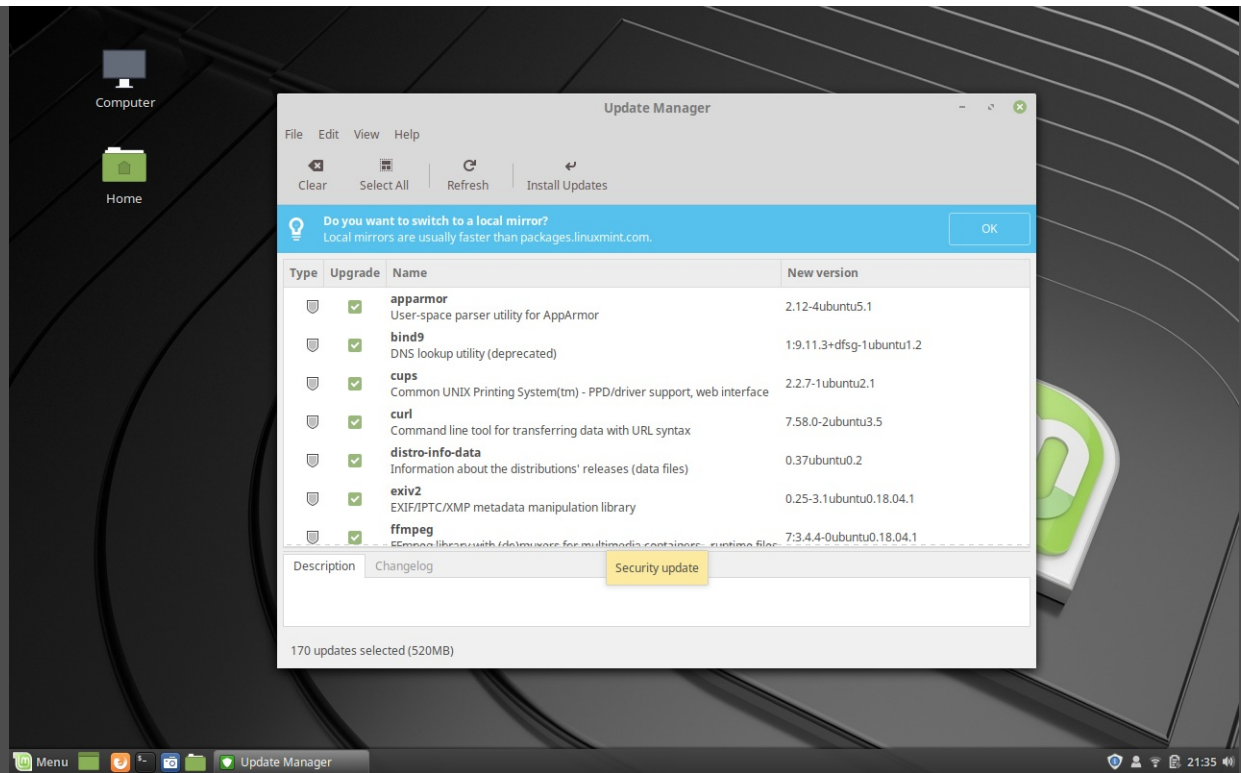
The snapshot is created. As you can see on the screenshot it takes some time again (00:17:31). You should plan a whole day for the installation of an operating system. You can do something like this on a Sunday, if you watch a Twitch Stream or Netflix.



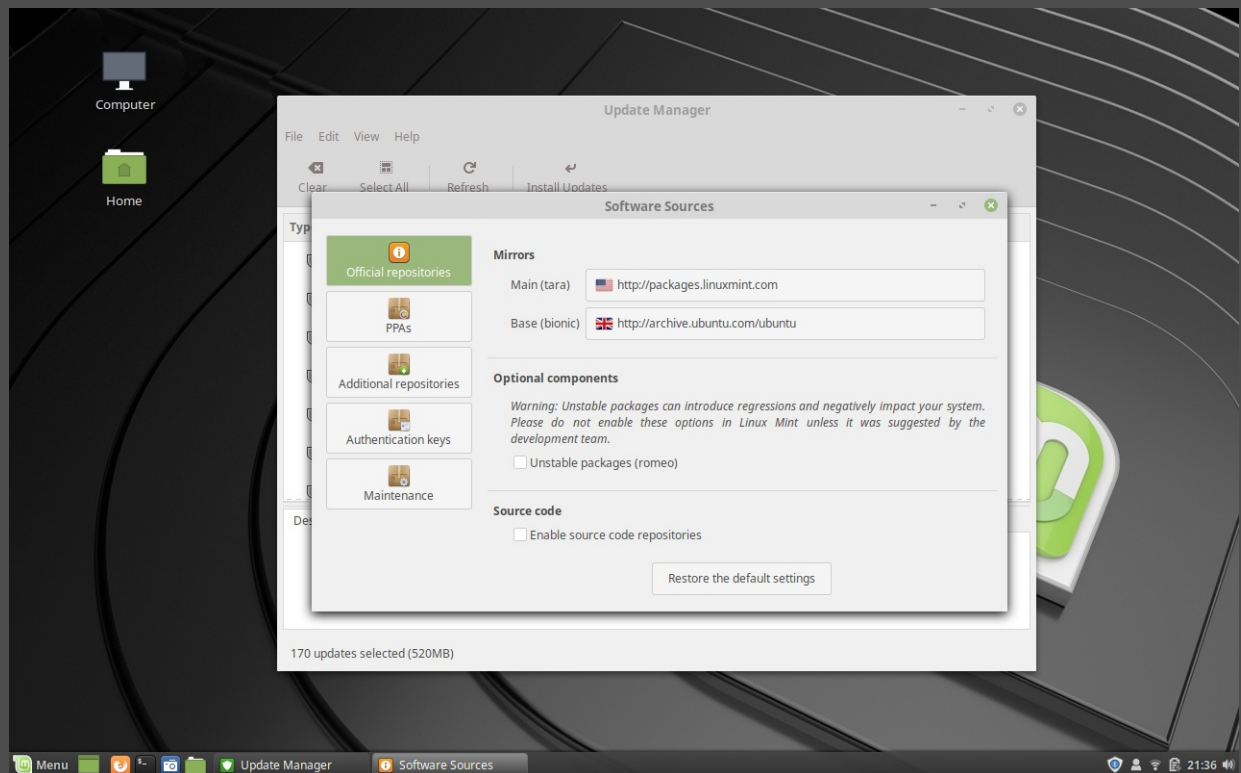
The snapshot has been taken and Timeshift is activated. Our first snapshot appears in the table. I recommend to take a look at the settings here as well. If you don't have that much memory you should separate the times of the snapshots.



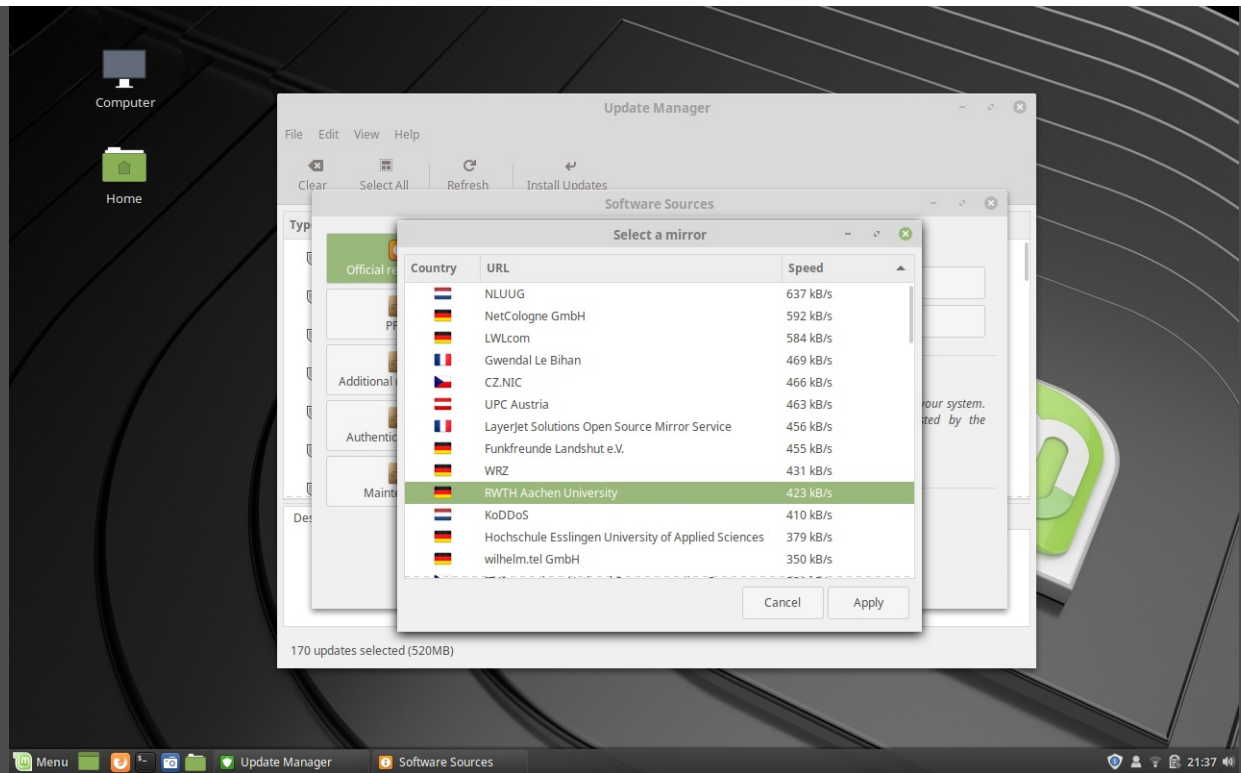
Now we can finally install the *mintupdate*, for which we have to enter the password again.



After that the complete update must be installed. To start the download time, it is worthwhile to choose a local mirror. This will reduce the download time considerably. Even in 2018 it still makes a difference if you download a file from Australia or from your home country.



There's a lot to keep in mind with the mirrors. You should always choose a server from your own home. This prevents your downloads from being moved across political borders. I'd rather be a little more careful than ten years ago. Whether that really brings something I can only assume however.



After we've selected our mirrors, the download begins. When the download is finished, the window closes automatically and you can sit the first time correctly on Linux Mint. All in all there is a lot to discover and you are confronted with a steep learning curve, but even for beginners this is not impossible. We all started small and then had to work our way up. I wish you a lot of fun with your new operating system and welcome you to the Linux community.